1.0 INTRODUCTION

1.1 Purpose

The purpose of the Central Indiana Suburban Transportation and Mobility Study (CISTMS) is to identify the key issues and problems pertaining to suburban mobility in the nine-county Central Indiana area and determine how those can best be addressed from a region level transportation planning perspective. The study area includes Marion County and the eight counties that surround it: Boone, Hamilton, Madison, Hancock, Shelby, Johnson, Morgan and Hendricks.

The Indianapolis region is well-served by "radial routes," oriented to Indianapolis. The primary focus of this study is on "crosstown" routes located outside I-465, including the following state route corridors: SR 32/38 on the north, SR 9 on the east, SR 44/144 on the south, and SR 267 and/or SR 39 on the west.

Solutions to problems within the identified corridors may involve improvements to parallel routes not currently under state jurisdiction. Potential examples include 146th Street in Hamilton County, the proposed Ronald Reagan Parkway (formerly the "North-South Corridor") in Hendricks County, and the proposed East-West Corridor in Johnson County.

This study will provide an analysis of the transportation needs for the suburban areas and a series of recommendations on how to improve the overall transportation system that serves Central Indiana. Key study activities include:

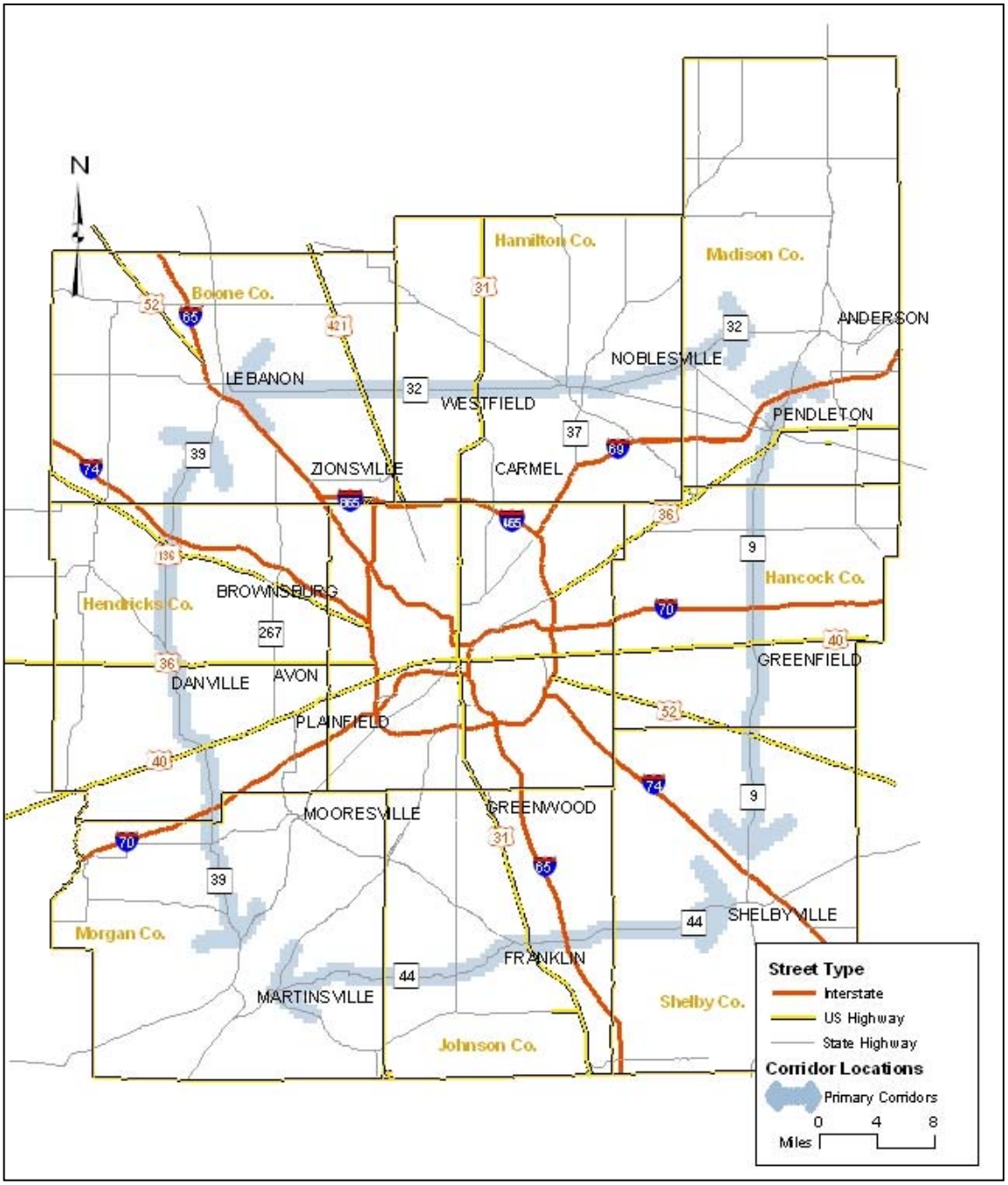
- Examination of the interrelationship of land use and transportation decisions, including an assessment of the impact of transportation changes (such as an outer beltway) on the transportation system and on development patterns.
- Study of "peer" cities that have looked at suburban mobility issues and a summary of their experiences and conclusions and how "lessons learned" can be applied to Central Indiana.
- Analysis of existing and anticipated conditions and needs in each of the four corridors identified for study.
- Identification of short term improvement opportunities within each study corridor.
- Analysis of the Statewide Mobility Corridor proposed east of Indianapolis (between State Route 9 and State Route 3).
- Review of potential traffic impacts of I-69 routings and connections on the Central Indiana region.

The purpose of this report is to provide an overview of each study corridor, document the existing conditions upon which the study is based, and identify potential short term improvement alternatives to address current problems.

1.2 Study Area

The study area for the Central Indiana Suburban Transportation and Mobility Study is shown on Figure 1-1. As the map shows, the four study corridor areas form a loosely defined loop around the Central Indiana region and connect the suburban communities that lie just outside (or on the edge of) the Indianapolis urban area. In this report, each of the four corridors is reviewed independently of the others. Potential issues related to upgrading all four corridors as an "outer loop" are not addressed here.

Figure 1-1: Project Study Area



1.3 Study Goals

Study goals serve to focus technical studies such as this and ensure that the appropriate factors are being emphasized as alternatives are being considered and evaluated. The goals for the Central Indiana Suburban Transportation and Mobility Study are structured around five key areas: functionality, safety, quality of life, cost effectiveness and equity. Further information on each is provided below.

GOAL #1: FUNCTIONALITY

- Improve mobility between suburban communities
- Improve movement of freight and other through-region trips
- Provide a more balanced transportation system
    - Reduce congestion
    - Provide an alternate to I-465 during peak congestion times
- Coordinate with MPO's Rapid Transit Study ("Directions")

GOAL #2: SAFETY

- Provide safer operations for existing and future travelers
    - Improve safety in areas with inadequate design standards and at other hazardous locations

GOAL #3: QUALITY OF LIFE

- Promote positive development patterns in the region
- Minimize negative impacts on social, economic and environmental resources
- Increase economic opportunity by improving connectivity between residential, employment, shopping, and recreational uses

GOAL #4: COST-EFFECTIVENESS

- Identify (a) fiscally realistic alternative(s)
- Demonstrate that overall benefits of the alternative(s) warrant their overall costs

GOAL #5: EQUITY

- Ensure that proposed alternatives meet Presidential Executive Order 12898 for Environmental Justice, which requires that disproportionately high and adverse human health or environmental effects on minority and low-income populations be identified and addressed for all federally-funded projects.

1.4 Organization of Report

Since each of the four corridors included in the study area operates independently of the others, this report is organized in a manner that facilitates review by corridor. The report is into six chapters, as described below:

Chapter 1: Introduction. This chapter identifies the purpose, goals, and area covered by the study. It also provides an overview of report structure and identifies the basis of review for potential strategies to maximize system efficiency.

Chapter 2: Overview of Study Area. This chapter provides background information for the region as a whole, describing regional demographics, commuting patterns, transportation systems, roadway and travel characteristics, intelligent transportation systems, and functional classifications.

Chapters 3 – 6: Corridor Overviews. These chapters provide a detailed review of the north, east, south and west corridors, respectively. Detailed information regarding roadway and travel characteristics, local plans and potential strategies are presented on a route and county basis. Each of these chapters is prepared in a manner that it can "stand alone" with respect to the corridors reviewed.

1.5 Potential Strategies to Maximize System Efficiency

In addition to reviewing the potential need for capital-intensive roadway improvement or upgrade needs, the Central Indiana Suburban Transportation and Mobility Study is structured to examine strategies to maximize system efficiency from a general planning perspective. The intent is to identify lower cost short-range improvements with a potential for improving conditions as they exist today. Options at this stage would be relatively inexpensive and easier to implement than added lanes or new facilities.

The following potential strategies are reviewed for each corridor segment described in Chapters 3 through 6 of this report:

Access Management. Effective management of access can have significant impacts on safety and capacity of roadway sections. The relationship between the number of access points per mile, free flow speeds, and accident rates is indicated below:

Access Points per Mile	Reduction in Free-Flow Speeds*	Increase in Crash Rates**
0	0.0%	---
10	2.5%	base
20	5.0%	30%
30	7.5%	70%
40 or more	10.0%	110%+

Sources: *Table 7-5, 1994 Highway Capacity Manual
**Office of Access Management, Minnesota DOT, 1999

Managing access "after the fact" for an existing roadway is certainly more challenging than designing effective access control when a facility is constructed. Nevertheless, it is useful to identify this as an area for potential improvement should favorable conditions arise. For the purposes of this report, 20 to 40 access points per mile on rural roadway sections is considered high. More than 40 access points per mile in rural sections is considered very high. Urban

areas may have even higher access density, but options for reducing access points within a street grid are virtually nonexistent.

One access management option that is often effective on existing roadways is the provision of a non-traversable median. Depending on available right of way, this may be a grassed median (typically installed with shoulder sections), a curbed island, or a barrier. Medians have the dual benefit of separating vehicles traveling in opposite directions and controlling left turning movements across the traffic stream. For the purposes of this review, medians are considered only for multilane roadways.

Traffic Engineering Improvements. These could include a range of features, such as traffic signals, auxiliary turn lanes, traffic signal retiming, pavement markings, speed limit changes, channelization, median placement, passing blisters, and other actions related to traffic control devices or localized roadway modifications. By their nature, traffic engineering improvements require a detailed understanding of site-specific operations. As such, they do not lend themselves well to systematic general planning recommendations.

For the purposes of this report, the potential for improving existing conditions by means of traffic engineering improvements is identified based on discussions with state and local personnel closely familiar with local conditions, and on observed conditions in the field. These potential locations/improvements are subject to adjustment or elimination based on more detailed field studies and evaluations.

Intelligent Transportation Systems (ITS). Generally, intelligent transportation system actions relate to the use of technology to better manage roadway system operations. This is accomplished by monitoring roadway conditions, improving motorist information, coordinating traffic control devices, and improving incident detection and response. The most promising strategies for arterial roadways such as these are incident detection (detectors or CCTV), motorist information devices (VMS, HAR), incident response programs, and traffic signal system coordination.

Generally, potential ITS applications do not lend themselves well to the systematically collected inventory and descriptive data compiled for this report. As with traffic engineering improvements, potential ITS actions are identified based on discussions with state and local personnel closely familiar with local conditions, and on observed conditions in the field.

Transportation Demand Management (TDM). Transportation demand management actions address the demand rather than supply side of transportation system operations. The concept is to reduce system use during peak periods when conditions are the worst. Staggered work hours, ridesharing and flexible working hours are examples of actions that impact peak hour demand. Land use changes and reductions in employment concentrations might also be considered TDM actions since the affect the “supply side” of the transportation system needs.

A potential for TDM actions is identified in this study where roadways demonstrate sharp peaking characteristics and/or land use is particularly intense, or where the potential benefits have been identified (based on more detailed area knowledge) by state and local personnel closely familiar with local conditions.

1.6 CISTMS Project Reports

The research, findings and recommendations associated with the key activities listed in Section 1.1 are documented in a series of reports. Following is a listing and a brief summary of each report completed or anticipated to be completed as part of the Central Indiana Suburban Transportation and Mobility Study:

- "Peer Cities Review" (February, 2004)

  This report reviews the findings of an examination of other cities' experiences with the development of "outer belts" (freeways or limited access roadways) that were built outside an initial freeway "ring" surrounding an urban area. The issue of outer belts (and related topics associated with urban bypasses) was addressed in two ways: a literature review of research intended to address the experience of a large number of metropolitan areas, and by a more detailed review of the direct experience of four "peer" cities (Boston, Houston, Nashville, and Charlotte).

- "Transportation and Land Use Assessment" (August, 2004)

  This document describes potential transportation and land use outcomes associated with two network alternatives (called "bookend alternatives") that represent a range of highway improvements intended to address long-range suburban mobility needs of Central Indiana. The "minimum change" alternative is the existing system plus committed improvements. The "maximum change" alternative added an outer belt freeway. In addition to reviewing transportation outcomes, the report describes probable land use impacts, based on the results of land use modeling using the LUCI regional land use model developed by the Center for Urban Policy and Environment at IUPUI.

- "Base Conditions Report" (June, 2005)

  The Base Conditions Report provides an analysis of existing conditions in each of the four study corridors and reviews short range improvement options to address existing deficiencies. In addition to evaluating existing conditions, the Base Conditions Report establishes the foundation for the evaluation of future conditions in the Final Project Report.

- "Final Report" (Fall, 2005 – Pending)

  The Final CISTMS Report will present an evaluation of year 2025 conditions in the four study corridors and will provide recommendations for project programming and other actions to address future needs. It will build upon the information presented in the Transportation and Land Use Assessment Report and the Base Conditions Report. Corridor specific recommendations and all remaining project activities (see Section 1.1) will be documented in the Final Report.

In addition to the formal project reports listed above, the CISTMS project has "documented" in a series of presentations to a project committee, regional planning committees and the Citizens Advisory Committee to the Indianapolis Metropolitan Planning Organization. A series of newsletters has also been prepared to update interested parties on study progress and findings. These newsletters and selected report summaries have been made available to the public by placing them on INDOT's website.